TUNE ALERTS FOR REMOTELY ADJUSTING A TUNER

BACKGROUND OF THE INVENTION

FIELD OF THE INVENTION

[01] The invention relates to selecting content with a media player. More particularly, the invention relates to systems and methods for sending messages to adjust tuners on remote media players.

DESCRIPTION OF RELATED ART

[02] Consumer electronic devices allow users to enjoy an ever-increasing amount of broadcast content. Broadcast content includes radio content, television content, streaming audio and video content and other content that may be processed by a media player. Users of media players often wish to alert other users of broadcast content that they enjoy or find interesting. For example, a person listening to a particular radio broadcast may hear content that the person thinks that his or her friend may be interested in receiving or a person viewing a digital video broadcast may wish to alert coworkers of a work related broadcast. People also enjoy discussing broadcasts with others who have also viewed or listened to the same broadcast.

[03] A conventional approach to alerting users of media players to broadcasts is for a first user to utilize a telephone device to call and describe the broadcast to a second user. One drawback of this approach is that it is burdensome to the first user and may cause the first user to miss part of the broadcast while describing the broadcast to the second user. Moreover, while wanting to alert the second user, the first user may not want to initiate a conversation that may move on to other topics.

[04] As a result, there is a need in the art for systems and methods that allow users of media players to alert other users of broadcasts in an efficient and timely manner.

BRIEF SUMMARY OF THE INVENTION

[05]   One or more of the above above-mentioned needs in the art are satisfied by the disclosed systems and methods for sending and processing tune alert messages. The messages may be sent directly from a media player while observing broadcast content and may be formatted to automatically adjust the configuration of another media player. The disclosed tune alert messages may be quickly formatted and transmitted to minimize interruptions to users observing broadcast content.

[06]   In a first embodiment of the invention, a method of transmitting a tune alert message from a first media player to a second media player is provided. First, broadcast content is presented to a user of the first media player. A tune alert message formatted to reconfigure the second media player to provide the content to a user of the second media player is generated at the first media player. The tune alert message is then transmitted from the first media player.

[07]   In another embodiment of the invention, a method of adjusting a configuration of a media player to receive broadcast content is provided. First, the media player receives a tune alert message formatted to reconfigure the media player to provide the broadcast content to a user of the media player. The tune alert message is then presented to a user of the media player. Finally, the media player is reconfigured to process the broadcast content.

[08]   In yet another embodiment of the invention, a media player configured to receive messages and programming content is provided. The media player includes a message module that receives a message transmitted to the media player and identifying a source of broadcast content. A tuner that is adjustable is provided to process content received from a plurality of different sources of broadcast content. The media player also includes a tune alert module configured to adjust the tuner to process content received from the content source identified in the message.

189640v1

[09]   In other embodiments of the invention, computer-executable instructions or control logic for implementing the disclosed methods are stored on computer-readable media or implemented with hardware modules.

[10]   Other features and advantages of the invention will become apparent with reference to the following detailed description and the figures.

BRIEF DESCRIPTION OF THE DRAWINGS

[11]   The present invention is illustrated by way of example and not limited in the accompanying figures in which like reference numerals indicate similar elements and in which:

[12]   Figure 1 shows a system for viewing broadcast content and transmitting tune alert messages between media players, in accordance with an embodiment of the invention;

[13]   Figure 2 shows an embodiment in which a media player transmits a tune alert message directly to another media player, in accordance with an embodiment of the invention;

[14]   Figure 3 illustrates a method of sending, receiving and processing tune alert messages, in accordance with an embodiment of the invention;

[15]   Figure 4 shows a user interface screen used to send tune alert messages, in accordance with an embodiment of the invention;

[16]   Figure 5 shows a user interface screen used to select user preferences, in accordance with an embodiment of the invention; and

[17]   Figure 6 shows a tune alert message displayed on a display screen of a portable audio/video device, in accordance with an embodiment of the invention.

DETAILED DESCRIPTION OF THE INVENTION

[18]   In the following description of the various embodiments, reference is made to the accompanying drawings which form a part hereof, and in which is shown by way of illustration various embodiments in which the invention may be practiced. It is to be understood that other embodiments may be utilized and structural and functional modifications may be made without departing from the scope of the present invention.

[19]   Figure 1 illustrates a system for viewing broadcast content and transmitting tune alert messages between media players in accordance with an embodiment of the invention. A media player 102 receives content broadcasted by a broadcast source 104. As used herein, a media player is not limited to a particular software implementation and may be implemented with a hand-held wireless device, a set-top box coupled to a television or monitor, a computer device, or any other electronic component that presents audio and/or visual content to a user and transmits messages to other media players. Media player 102 may also be implemented with a mobile telephone device, such as a Nokia Mobile Communicator. While observing content broadcasted by broadcast source 104, media player 102 may transmit a tune alert message to message server 106. Message server 106 may relay messages between media players 102 and 108. In addition, a tune alert filter module 106a may be included to filter messages before they are transmitted to media players. The filtering of tune alert messages will be apparent from the description provided below.

[20]   In operation, while listening to a radio broadcast, media player 102 may transmit a tune alert message to media player 108 via message server 106. The tune alert message may be formatted to automatically tune media player 108 to the broadcast identified in the tune alert message. Media players 102 and 108 may be implemented with different devices that operate with different protocols or formats. In one aspect of the invention, message server 106 stores information relating to the formats and

189640v1

protocols used by each of the media players. After receiving a message from a first media player, message server 106 may reformat the message, when necessary, before transmitting the message to a second media player.

[21]   Figure 2 illustrates an embodiment in which a first media player 202 transmits a tune alert message 204 to another media player 206. Figure 2 shows an embodiment in which the transmission path between media players includes the Internet 208. Media players 202 and 206 receive digital video broadcasted from a satellite 210. Media players 202 and 206 include transceiver modules 212 and 214 for sending and receiving messages. In one aspect of the invention, transceiver modules 212 and 214 are implemented with conventional modem units for sending content across the Internet 208. In an alternative embodiment, media players 202 and 206 may communicate directly using Bluetooth, IrDa or other known protocols or components that allow for communications without an external network or server.

[22]   Each media player may also include a tuner module 216 and 218 for selecting broadcast content. One skilled in the art will appreciate that tuner modules 216 and 218 may be implemented with a variety of different content selection devices that are chosen based on the particular application. For example, tuner modules 216 and 218 may be implemented with frequency selection devices or modules used to select a particular transmission stream or packet identifier from digital video broadcast.

[23]   Tune alert modules 220 and 222 may be included to format and process tune alert messages. Tune alert module 220 may format tune alert message 204 to include the information shown in figure 2 in a manner that can be processed or deciphered by media player 206. Tune alert message 204 may be formatted in accordance with message platforms that include, but are not limited to SMS, Bluetooth, XML and MMS (Multimedia Messaging System). Tune alert module 222 may include hardware and/or software components for the processing of tune alert messages and, when appropriate, adjusting the configuration of tuner 218. Media player 206 may also include a memory 224. Memory 224 may be used to store tune alert messages,

189640v1

preference parameters or other information and may be used by media player 206. Media player 202 may also include a similar memory.

[24] Media player 202 and 206 may also include audio/video generators 226 and 228 for creating audio and/or video signals that may be presented to users. For example, audio/video generator 228 may create an NTSC signal that may be used by a conventional television 230. Of course, one or both of media player 202 and 206 may also include speakers, a microphone, a display screen or any other component used to present audio and/or video content. Moreover, media player 202 and 206 may also include a variety of additional components that are unrelated to the transmission and reception of tune alert messages, such as telephone components and any additional components and modules conventionally associated with personal digital assistants, digital video processing devices and wireless devices.

[25] Figure 3 illustrates a method for sending, receiving and processing tune alert messages in accordance with an embodiment of the invention. First, in step 302, broadcast content is presented to a user of a first media player. Step 302 may include displaying a television broadcast, presenting multimedia content, generating sound from a radio broadcast or any other form of presenting broadcast content. Content may also be in the form of promotional content or advertisements. In one aspect of the invention, promotional content is selected and transmitted to media players based, at least in part, on the locations of the media players. Location information may be determined by a GPS receiver, may be based on the location of a current cell or may be determined by other means. In one embodiment, a user manually enters location information, which may be stored in a profile. Next, in step 304 the first media player generates a tune alert message formatted to reconfigure the second media player.

[26] Figure 4 illustrates a user interface screen that may be used to send a tune alert message. A "Send To" field 402 may contain a list of users known to the first user. Each of the listed users may have a corresponding recipient ID, such as an Internet protocol (IP) address or telephone number. The first user may select one of the

189640v1

-6-

individuals listed or, alternatively, address the tune alert message to a user not listed in field 402. Next, an "Action Option" field 404 identifies an urgency of the tune alert message. In particular, the sender can request that the recipient of the tune alert message tune to the broadcast immediately, at a predetermined time, when convenient or at any other time identified by the sender of the tune alert message.

[27] The sender of the tune alert message may also include profile information characterizing the content in a "Profile Information" field 406. Of course, there exists a variety of different types of information that may be included within profile information. In one embodiment, the profile information is compared to preference information in another mobile terminal. The sender of the tune alert message may also elect to insert a message by making the appropriate selection and then entering the appropriate information in an "Insert Message" field 408.

[28] Returning to figure 3, in step 306, the tune alert message is transmitted from the first media player. In one embodiment, step 306 may be performed after a user sending the message selects a send button 410 (shown in figure 4). In step 308, at least one parameter of the tune alert message is compared to at least one preference parameter provided by a user of the second media player. Step 308 may be performed at a media player. Alternatively, step 308 may be performed at a message server to limit the number of messages transmitted to a media player.

[29] Figure 5 illustrates a user interface screen that may be used to provide preference information. A "Block All From" field 502 allows the user to identify other users from whom the user does not desire to receive tune alert messages. An "Allow All From" field 504 allows the user to identify other users from whom all tune alert messages will be processed. One skilled in the art will appreciate that there are numerous preference options they can be used to block or filter tune alert messages. For example, an "Allow All" field 506 and a "Block All" field 508 may be used to provide preferences for filtering messages based on one or more characteristics of the content identified in the messages.

189640v1

[30]   Returning once again to figure 3, in step 310 the tune alert message is presented to a user of the second media player. Figure 6 illustrates a tune alert message 600 displayed and a screen of a portable audio/visual device. Tune alert message 600 includes information identifying the source of the message and the type of content being broadcasted. Tune alert message 600 also includes buttons allowing the second user to decide how to respond to the message. A tune now button 602 may be selected to tune to the broadcast identified in the message. After the user selects tune now button 602, in step 312 the second media player is reconfigured to process the content identified in tune alert message 600. In one aspect of the invention, the second media player may be configured to automatically tune to broadcasts identified in tune alert messages without any further action by the user of the second media player. This feature may be set by making an appropriate preference selection.

[31]   A delete button 604 may be selected to delete the tune alert message. A bookmark button 606 may be included to bookmark the source of the content. In one aspect of the invention, tune alert message 600 is displayed for a predetermined period of time and then erased from the display screen.

[32]   The present invention is not limited to embodiments that include communication between two mobile terminals. In one embodiment of the invention (not shown), a media player may poll for tune alert messages either in response to a manual request from a user or in accordance with a rule set by the user. A media player may send preference information to a central server. The central server may store tune alert messages with corresponding metadata that may be matched to the preference information. When a match is found, the central server may then send one or more tune alert messages to the requesting media player. In a similar alternative embodiments, tune alert messages may be requested from other entities, such as a group of peers with matching taste in content, a particular broadcaster or a local Bluetooth or WLAN device, such as a media player using Bluetooth to broadcast a tune alert message. Among other advantages, requesting tune alert messages

empowers users to find content at a particular time which best suits his or her preference for receiving and optionally consuming the content.

[33] While the invention has been described with respect to specific examples, those skilled in the art will appreciate that there are numerous variations and permutations of the above described systems and techniques that fall within the spirit and scope of the invention as set forth in the appended claims. For example, the disclosed methods may be implemented as computer-executable instructions recorded on a computer readable medium such as a floppy disk or CD-ROM or as specified hardware, such as an ASIC or FPGA.

189640v1